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6 November 1964  
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EIGHTH MONTHLY PROGRESS REPORT  
OCTOBER 1964

MICRODENSITOMETER CAPABILITY AND INTERPRETATION STUDY

This report covers the eighth month's activities on a program of studies of microdensitometer capability and interpretation techniques. The program has three objectives, which are: (1) the establishment of techniques which will enable a microdensitometer operator to use the instrument to its maximum capability and to interpret the data therefrom accurately, (2) a survey of existing instruments to study the most recent developments in microdensitometry; and (3) a study of the feasibility and effectiveness of various advances in the state-of-the-art.

Each of the three tasks has been continued during the reporting period. As of the end of the month, the percentage expenditure to date was 94%.

I. Mensuration Procedures and Data Interpretation

Effort on Task I has included the continuation of the write-up of mensuration procedures and data interpretation techniques into the form of a microdensitometry handbook. Additional sections have been completed in rough draft form.

A study of the relation between average photographic density and transmittance has been completed. The results of this study are included as attachment 1 to this report.

**Declass Review by NIMA/DOD**

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## II. Equipment Capability

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The survey and performance tests of existing micro-densitometers were completed with visits to [REDACTED]

[REDACTED] The results of these trips are included as attachments 2, 3, and 4 to this report.

Effort has continued on the write-up of the results of the survey and instrument performance tests into a single report.

## III. Feasibility Studies

Theoretical studies of safe laser powers for micro-densitometers and microdensitometer sources and detectors were completed during the reported period. The results of these studies are included as Attachments 5 and 6 to this report.

The microdensitometer features that are considered most desirable, as a result of investigations conducted under all three tasks, are being incorporated into a report of advanced microdensitometer concepts. Some considerations, resulting from Task II, are presented in Attachment 7 to this report.

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Attachments:

- STATINTL 1. [REDACTED] The Relation between Average Photographic  
Density and Transmittance for Four Cases of Interest  
HBH:bjs-431 dated October 8, 1964
- STATINTL 2. [REDACTED] Trip Report to [REDACTED] STATINTL  
STATINTL [REDACTED] - MM:bjs-450 dated October 27, 1964 STATINTL
- STATINTL 3. [REDACTED] Trip Report to [REDACTED]  
MM:bjs-449, dated October 27, 1964
- STATINTL 4. [REDACTED] Trip Report to [REDACTED] STATINTL  
Corporation, MM:bjs: 458, dated Oct. 30, 1964.
- STATINTL 5. [REDACTED] Safe Laser Powers for Microdensitometers  
JG:bjs-448, dated October 27, 1964.
- STATINTL 6. [REDACTED] Microdensitometer Sources and Detectors  
JG:bjs-453, dated October 30, 1964
- STATINTL 7. [REDACTED] Some considerations in the design of an  
Improved Microdensitometer System  
MJM:bjs-446, dated October 28, 1964.